

Title Near-infrared transmittance spectroscopy for detection of insects and mites in grain.
Authors Hansen, L. S., Aberg, L., Kristensen, M. and Sandgren, M.
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Abstract

Near-infrared transmittance spectroscopy (NIT) is used as a rapid analysis method to determine protein and moisture contents in grain arriving at commercial elevators and mills. There is great interest in expanding this technique to include mycotoxins and pests. A pilot project has studied the possibilities of a commercially available instrument (InfratecTM, Foss Tecator) that applies NIT. The following hygienic parameters were included: ergosterol (a component of fungal cell membranes); the mycotoxin deoxynivalenol; and two pest species, the granary weevil *Sitophilus granarius* and the grain mite *Lepidoglyphus destructor*. For *S. granarius*, the detection limit was not low enough for the method to be of practical interest. The results with mites were more encouraging; a good correlation between mite density and analysis result was found. However, further investigations are necessary to clarify performance at low mite densities as well as the lower detection limit. The work with mites and mycotoxins is being continued in a new, three-year project.